

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): In a nucleic acid expression assay, comprising (1) performing in vitro transcription of target nucleic acid template to generate cRNA, (2) contacting said cRNA with a probe immobilized on a microarray under conditions that allow hybridization between said cRNA and said probe, and (3) detecting hybridized cRNA to assay expression of said target nucleic acid template, the improvement comprising, (a) during said performing step, incorporating in-providing said cRNA with at least one phosphorothioate moiety; and (b) labeling said cRNA by conjugating a reporter molecule to said phosphorothioate moiety.

Claim 2 (cancelled)

Claim 3 (currently amended): The method of claim 1-claim 2, wherein said labeling step comprises reacting said cRNA with a conjugating moiety that specifically reacts with said phosphorothioate moiety, followed by reaction with a labeling moiety that specifically reacts with said conjugating moiety.

Claim 4 (currently amended): The method of claim 1-~~claim 2~~, wherein said labeling step follows said contacting step.

Claim 5 (currently amended): The method of claim 1-~~claim 2~~, wherein said reporter molecule has an electrophilic moiety.

Claim 6 (original): The method of claim 3, wherein said conjugating moiety is an electrophilic moiety.

Claim 7 (original): The method of claim 5, wherein said electrophilic moiety is selected from the group consisting of a maleimide and an iodoacetamide.

Claim 8 (currently amended): The method of claim 1-~~claim 2~~, wherein said reporter molecule is selected from the group consisting of a fluorophore, a redox moiety, and an electrochemically active agent.

Claim 9 (currently amended): The method of claim 1-~~claim 2~~, wherein said reporter molecule is selected from the group consisting of TMR-maleimide, TMR-iodoacetamide and ALEXAFLUOR-maleimide.

Claim 10 (cancelled)

Claim 11 (previously presented): The method of claim 1, wherein said cRNA has at least three different thio ribonucleotides, said thio ribonucleotides being selected from the group consisting of an adenosine thiophosphate, a cytidine thiophosphate, a guanosine thiophosphate, a thymidine thiophosphate, and a uridine thiophosphate.

Claims 12–14 (cancelled)

Claim 15 (withdrawn): A method for detecting single nucleotide polymorphism, comprising extending a probe hybridized to a target by exactly one base by incorporating a compound selected from the group consisting of a dideoxynucleoside α -thio triphosphate and an acyclonucleoside α -thio triphosphate.

Claim 16 (withdrawn): The method of claim 15, further comprising labeling the extended probe by conjugating a reporter molecule to the thio moiety of said incorporated compound.

Claim 17 (withdrawn): The method of claim 16, wherein the reporter molecule is selected from the group consisting of TMR-maleimide, TMR-iodoacetamide, Alexafluor-maleimide, and bromo-bimane.

Claim 18 (withdrawn): The method of claim 15, wherein said dideoxynucleoside α -thiotriphosphate is at least one of the group consisting of dideoxyadenosine α -thiotriphosphate, dideoxycytidine α -thiotriphosphate, dideoxyguanosine α -thiotriphosphate, 3'-deoxythymidine α -thiotriphosphate, and dideoxyuridine α -thiotriphosphate.

Claim 19 (withdrawn): A polynucleotide, comprising at least one residue of the group consisting of an adenosine thiophosphate residue, a deoxyadenosine thiophosphate residue, a cytidine thiophosphate residue, a deoxycytidine thiophosphate residue, a guanosine thiophosphate residue, a deoxyguanosine thiophosphate residue, a thymidine thiophosphate residue, and an uridine thiophosphate residue, and at least one moiety bonded to said at least one residue, said moiety selected from the group consisting of a maleimide and an iodoacetamide.

Claim 20 (withdrawn): The polynucleotide of claim 19, wherein said moiety is selected from the group consisting of TMR-maleimide, TMR-iodoacetamide and Alexafluor-maleimide.

Claim 21 (withdrawn): The polynucleotide of claim 19, further comprising a probe hybridized thereto.

Claim 22 (withdrawn): The polynucleotide of claim 19, further comprising a probe hybridized thereto, said probe being attached to a microarray substrate.

Claim 23 (withdrawn): The polynucleotide of claim 19, wherein said polynucleotide is cRNA.

Claim 24 (withdrawn): A molecular probe, wherein said probe terminates in a moiety selected from the group consisting of a thio dideoxynucleotide and an thio acyclonucleotide.

Claim 25 (withdrawn): The probe of claim 24, wherein said probe is a nucleic acid probe.

Claim 26 (withdrawn): The probe of claim 24, wherein said probe is bound to a microarray substrate.

Claim 27 (withdrawn): The probe of claim 26, wherein said probe is a nucleic acid probe and is hybridized to a target nucleic acid.

Claim 28 (withdrawn): A microarray, comprising at least one molecular probe, said probe terminating in a moiety selected from the group consisting of a thio dideoxynucleotide and a thio acyclonucleotide.

Claim 29 (withdrawn): A nucleic acid, said nucleic acid comprising at least three residues of the group consisting of an adenosine thiophosphate residue, a deoxyadenosine thiophosphate residue, a cytidine thiophosphate residue, a deoxycytidine thiophosphate residue, a guanosine thiophosphate residue, a deoxyguanosine thiophosphate residue, a thymidine thiophosphate residue, and a uridine thiophosphate residue.

Claim 30 (withdrawn): The nucleic acid of claim 29, comprising at least four residues of the group consisting of an adenosine thiophosphate residue, a deoxyadenosine thiophosphate residue, a cytidine thiophosphate residue, a deoxycytidine thiophosphate residue, a guanosine thiophosphate residue, a deoxyguanosine thiophosphate residue, a thymidine thiophosphate residue, and a uridine thiophosphate residue.

Claim 31 (withdrawn): The nucleic acid of claim 29, comprising a labeling moiety conjugated to a thiophosphate moiety in at least one of said residues.

Claim 32 (withdrawn): A nucleic acid, comprising cRNA having a thiophosphate nucleotide.

Claim 33 (withdrawn): A cRNA comprising at least one residue selected from the group consisting of an adenosine thiophosphate residue, a cytidine thiophosphate residue, a guanosine thiophosphate residue, and an uridine thiophosphate residue.

Claim 34 (withdrawn): An expression assay kit, comprising a labeling reagent, and a nucleotide reagent, said labeling reagent comprising a thioreactive compound, and said nucleotide reagent comprising a nucleoside α -thiotriphosphate.

Claim 35 (withdrawn): The kit of claim 34, wherein said nucleotide reagent is at least one of the group consisting of adenosine α -thiotriphosphate, cytidine α -thiotriphosphate, guanosine α -thiotriphosphate, and uridine α -thiotriphosphate.

Claim 36 (withdrawn): The kit of claim 34, wherein said thioreactive compound is selected from the group consisting of a maleimide and an alkyl iodide.

Claim 37 (withdrawn): A single nucleotide polymorphism assay kit, comprising a labeling reagent, and a nucleoside triphosphate, said labeling reagent comprising a thioreactive compound, and said nucleoside triphosphate comprising a compound selected from the group consisting of a dideoxynucleoside α -thiotriphosphate and an acyclonucleoside α -thiotriphosphate.

Claim 38 (withdrawn): A method of labeling a nucleic acid that terminates in a residue selected from the group consisting of a dideoxyadenosine thiophosphate residue, a dideoxyguanosine thiophosphate residue, a dideoxycytidine thiophosphate residue, a 3'-deoxythymine thiophosphate residue, and a dideoxyuridine thiophosphate residue, comprising reacting said nucleic acid with a thioreactive compound.

Claim 39 (withdrawn): A method of labeling a nucleic acid that terminates in a residue selected from the group consisting of an acycloadenosine thiophosphate residue, an acycloguanosine thiophosphate residue, an acyclocytidine thiophosphate residue, a 3'-acyclothymine thiophosphate residue, and an acyclouridine thiophosphate residue, comprising reacting said nucleic acid with a thioreactive compound.